

1. Is there a noise problem? **Yes**

a. If so, what are the expected major sources of noise that are of concern? **Solar inverters and smart meters**

b. What services are being most impacted by a rising spectrum noise floor? **Health, as this waveform and frequency is known to effect the ion channels of the cell. IEEE Trans Biomed Eng. 2006 Dec;53(12 Pt 1):2445-54.**

Mechanism of nerve conduction block induced by high-frequency biphasic electrical currents.

Zhang X1, Roppolo JR, de Groat WC, Tai C.

<http://www.ncbi.nlm.nih.gov/pubmed/17153201>

c. If incidental radiators are a concern, what sorts of government, industry, and civil society efforts might be appropriate to ameliorate the noise they produce? **Install filters and get rid of smart meters**

2. Where does the problem exist? **Everywhere Silver Spring Networks circuit boards are used**

a. Spectrally

i. What frequency bands are of the most interest? **10 kHz**

b. Spatially

i. Indoors vs outdoors? **Around electric fields and in the earth**

ii. Cities vs rural settings? **Doesn't matter**

iii. How close in proximity to incidental radiators or other noise sources?

iv. How can natural propagation effects be accounted for in a noise study?

c. Temporally

i. Night versus day? **Day**

ii. Seasonally? **No**

3. Is there quantitative evidence of the overall increase in the total integrated noise floor across various segments of the radio frequency spectrum?

a. At what levels does the noise floor cause harmful interference to particular radio services?

b. What RF environment data from the past 20 years is available, showing the contribution of the major sources of noise?

c. Please provide references to scholarly articles or other sources of spectrum noise measurements.

4. How should a noise study be performed? **With a Fluke Scopemeter**

a. What should be the focus of the noise study?

b. How should it be funded?

c. What methods should be used? **Connect to a 120 VAC receptacle using an oscilloscope. or connect to two grounds rods 50 feet apart.**

d. How should noise be measured? **Oscilloscope**

i. What is the optimal instrumentation that should be used? **Battery operated and isolated scope with a Graham Ubiquitous filter**

ii. What measurement parameters should be used for that instrumentation?

iii. At what spatial and temporal scales should noise be measured?

iv. Should the monitoring instrumentation be capable of determining the directions of the noise sources? **No** If so, how would those data be used?

v. Is there an optimal height above ground for measurements?

e. What measurement accuracy is needed?

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i. What are the statistical requirements for sufficient data? Would these requirements vary based on spectral, spatial and temporal factors?

ii. Can measurements from uncalibrated, or minimally calibrated, devices be combined?

iii. Is it possible to "crowd source" a noise study?

f. Would receiver noise measurements commonly logged by certain users (e.g. radio astronomers, cellular, and broadcast auxiliary licensees) be available and useful for noise floor studies?

g. How much data must be collected to reach a conclusion? **30 days worth, with emphasis on measurements just before sunset**

h. How can noise be distinguished from signals? **Testing a known polluter (smart meter)**

i. Can noise be characterized and its source identified? **Yes**

ii. Is there a threshold level, below which measurements should be ignored? **No, because it's riding on the 60 cycle waveform.**